

A comparison between the efficacy of narrow band ultra violet B phototherapy with and without needling of the lesion in the treatment of vitiligo

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BACKGROUND: Vitiligo as a common pigmentary disorder affects up to 2% of the general population. There are several treatment modalities in the literature but photo therapy is one of the best known with an improving effect. The goal of this study was to compare the efficacy of NB-UVB alone with adjunction of NB-UVB with needling procedure in inducing of repigmentation. **METHODS:** This was a randomized clinical trial which was done on 41 vitiliginous patches of patients with non responding vitiligo. The selected patches of the body were treated 3times a week with NB-UVB therapy either with or without the needling approach for three month. The pigmentation score and the photographs of before and after the therapy were compared to evaluate the response rate. **RESULTS:** The pigmentation score and improvement of the lesions differed statistically in the combined needling side in comparison with the NB-UVB alone side in favor of the combined treatment ($p < 0.05$). The response rate was higher in trunkal lesions than lesions on the extremities ($p < 0.05$). **CONCLUSIONS:** The needling procedure can increase the response rate of photo therapy and it accelerates the improvement process and therefore, reduces the side effects.

Key words: Vitiligo, Narrow Band UVB, Phototherapy, Needling.

INTRODUCTION

Vitiligo is one of the commonest pigmentary disorders which revealed as depigmented patches specially on face and exposed parts of exterinities.(1)

It may affects up to 2% of general population in every ethnic groups but the effect on the patient's appearance is more obvious in the dark skinned(2).

As vitiligo has a dramatic effect on the patient's general appearance, the patient's quality of life may be influenced dramatically by the disease. The patients may suffer from anxiety, depression and also social isolation because of their depigmented visible patches on the exposed parts.(3)

It is a multifactorial disorder and there are several suggested underlying etiologies. the positive family HX is reported in 20-30% (4) Auto immune and neurogenic theories and also auto destruction of melanocytes are also suggested. (5)

The psychological impacts of vitiligo is completely obvious especially in female patients and those who

are dark skinned.

Due to the great influence of vitiligo on patient's general appearance seeking for medical advice is so common. There are several treatment modalities like topical and surgical techniques. corticosteroids, calcineurin inhibitors, vitamin D analogues and photo therapy are some of the well known reported therapies which have different response rates. (6,7)

Narrow band ultraviolet B (NB-UVB) (311 nm) is the selected type of phototherapy with 40-70% repigmentation rate depending on the affected site . (8,9)

The narrow bond UVB is used routinely two to three times a week for about 30-60 sessions and the patches which are radiated by UVB will resolve by peri follicular repigmentation which merge together to form a uniform pigmented patch (8,9)

We have several reports of induction of repigmentation in the stable patches of vitiligo by needling from pigmented margins towards white central areas (10,11)

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The goal of this study was to compare the efficacy of NB-UVB alone with adjunction of NB UVB with needling procedure in inducing of repigmentation.

METHODS

This was a randomized clinical trial study which enrolled 41 non responding vitiliginous lesions(for the previous six months) of vitiligo patients who are selected randomly with simple random sampling from dermatology clinic of Alzahra Saint hospital in Isfahan medical university between October 2008 till October 2009.

This study confirmed by research chancellery of Isfahan University of medical science with the research project number of 389021.

The goal of the study was discussed for all the participants, and the informed consent was obtained. Two different vitiligo patches in 21 patients which did not respond to any type of treatment during the last 6 months were selected and randomly divided and named A or B patch.

Finally 41 vitiliginous patches of patients with non responding vitiligo were include in the study. The history of previous therapies and also the presence of concurrent disorders and other medications obtained and those who had diseases which could exacerbate by ultraviolet light (like systemic lupus erythematosus) were excluded. The photography of the lesions were obtained by a digital 8 megapixel Canon camera .The presence or absence of perifollicular pigmentation also determined.

All the patches (A and B patches) irradiated with NB UVB (311 nm) three times a week for three months. The initial radiation dose was 0.5 -1j/cm² which was modified due to the presence and severity of lesional erythema by 0.1j/cm² in order to decrease side effects and enhance the therapeutic response (8,9).

The B patches were subjected additionally to needling from the peripheral border just before each session of NB UVB by using the 30 G insulin needle. The needle

was inserted by 15 degree angle to reach the dermo-epidermal junction in several points 1 cm apart.

The needles entered from the peripheral pigmented border or pigmented dots in the lesion and slides toward the central depigmented area parallel to the surface. If there was any pigmented spot in the field of the lesion they were inserted as well.

The treatment lasted for 3 months during which the patients were visited every 3 weeks for monitoring the response rate. Final recovery analyzed by a four grade scoring system for pigmentation which is shown in table-1 (11).

Table 1: Grade of repigmentation

G0	None
G1	up to 25% repigmentation
G2	25-50% repigmentation
G3	> 50% repigmentation

SPSS software 17.0 was used for statistical analysis.The spearman and wilcoxon and kruskal vallis used for data analysis.

Results

The age range was 14 to 40 years and the duration of disease was 10 months to 21 years.

There were no facial lesions and the commonest site was upper extremities. The base line pigmentation score do not differ between two groups (p>0.05)

The table2 demonstrated the pigmentation grade after two methods of therapy

The wilcoxon test demonstrated a more pigmentation grade in the B side (combination therapy) than A Side in both trunkal and limb lesions (NB UVB alone).

The Kruscal -walis test showed a statistically different score of pigmentation in trunkal lesions in comparison with lesions on the extrimities and the trunkal lesions responds better (P < 0.05).

Table 2: the grade of pigmentation after treatment

Grade of pigmentation	A side(NB UVB)	B side (NBUVB+needling)	P Value
0	19 (46/3%)	7 (17/1%)	P<0.05
1	5 (12/2%)	6 (14/6%)	p>0.05
2	11 (26/8%)	11 (26/8%)	P>0.05
3	6 (14/6%)	17 (41/5%)	P<0.05

NB UVB; Narrow band ultraviolet type B

The higher grades of repigmentation(G3) was more visible in the B side(combination therapy) than A side (41.5% Vs 14.6%; $p < 0.05$).

There were no reported complication except purpura in the injection side which cleared rapidly and five patients complained about generalized darkening of irradiated peripheral there were no report of kobnerization.

DISCUSSION

Vitiligo is one of the cosmetically important pigmentary disorders which could have a disturbing impact on patients general health. Phototherapy specially NB UVB subtype is completely efficacious in several studies.

The surgical procedures like punch graft and melanocyte suspension have shown up to 90% response rate in several studies (12-14)

We used combined needling technique with phototherapy to a accelerate the improvement response. it seems that the underlying theory for the efficacy of needling procedure is to introduce and push the active melanocyte which are in the pigmented border of lesions toward the central hypopigmented part .

The melonocytes which are laying in the basal layer of the periphery of the vitiligo patches and those which are in the pigmented spots serve as a reservoir for melanogenesis.

The studies which were done by other authors in Pakistan and India have the same comparable results as ours and they had also better results in trunkal lesions than extremities.(11-16)

As our patients showed well tolerance to needling procedure and it was a quite simple and easy method for the physician and, there was also no reported long lasting side effect, so it could be added simply to the routine NB_UVB therapy.

We advise further researches with a longer follow up period.

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